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Wild Asian Elephant Twins in Sri Lanka

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Introduction

We report on the sighting of twin calves born to a wild Asian elephant (*Elephas maximus*) in Sri Lanka (Fig. 1). We failed to find any previous published reports of twinning in free-ranging Asian elephants, hence assume this to be the first such communication.

The twins were identified in the Minneriya National Park, which is famous as the site of the 'elephant gathering'. The central feature of the Minneriya National Park is a large artificial lake, which dates back more than a thousand years, having been built in the time of the ancient kings of Sri Lanka. The lake was created for irrigated paddy cultivation and continues to be used for the purpose. It fills up during the northeast monsoon from October to January. Annually, when the water is let out for paddy cultivation in the dry season that falls from May to September, the exposed lakebed turns into a lush grassland. Hundreds of elephants gather there to feast on the fresh grass during this period and aggregations of up to a 100 elephants maybe commonly observed, with over 300 elephants sighted in a single 'safari' at times. Minneriya is part of a large protected area system that allows free movement of elephants and includes the Kaudulla and Anganmadilla National Parks (also with large reservoirs), Giritale Sanctuary, Hurulu Eco-Park and Forest Reserve and Gal Oya Forest Reserve.

The Minneriya twins

When the gathering commenced this year, two newborn babies suckling together on either side of the same female were observed by SP. The twins were first seen on 3rd July 2020. As the

park was closed for over three months from mid March to 1st July 2020 due to covid-19 safety measures, the exact time of birth is not known. We estimate the twins to be born some time in June 2020. As one is a female and the other a male, they are non-identical or fraternal twins, which means they originate from two eggs (dizygotic). Therefore genetically they are the same as full siblings and on average would share 50% of their genes, but as twins they had the same gestational experience.

Sometimes elephant babies are known to suckle from other females in the herd, a phenomenon referred to as 'allomothering' (Lee 1987). However, during continuous observations for 4 h on 6th July and another 2 h on 12th July 2020, the two calves suckled exclusively from a single female and followed her very closely everywhere (Fig. 2). The behaviour and the similarity in size of the babies make it almost certain that they are twins.

The elephants in Minneriya and the adjacent protected areas are being studied through the Cinnamon Elephant Project. The project



Figure 1. Female 'Bernadine' with her twins at Minneriya National Park, Sri Lanka.

individually identifies and catalogues the elephants that are observed. Currently over 400 elephants have received ID cards and the numbers do not show any sign of levelling off yet. The mother of the twins is a female known as Bernadine. She is also accompanied by her previous offspring Bubba, who is now about four years old. The twins have been named Bhathiya and Bhagya by the Wildlife Department. Big brother Bubba does not seem to be too interested in the twins but their cousin Bonnie, who is a female about six years old, is very concerned about them and is always with them.

Twinning in elephants

Twin births are rare among elephants. In wild African elephant populations, the frequency of twin births was observed to be 0.07% at Amboseli (Moss *et al.* 2018) and 2.46% in Tarangire National Park (Foley 2002). At Amboseli only 2 sets of twins (both opposite sex) were recorded out of 2687 births (Moss *et al.* 2018). At Tarangire National Park 7 sets of twins were born in 284 pregnancies (Foley 2002). Five of them were male-female and the other two were twin females. Notably one female gave birth to twins three times in a row and another female in the same herd also had twins (Foley 2002). This may indicate a genetic propensity for twinning in particular females and also explains the high twinning rate at Tarangire National Park with 4 of the 7 sets of twins being born in just one herd.

The only previously published records of twin births in Asian elephants appear to have been of those in captivity. In European zoos 5 of 551 (0.91%) Asian elephant births were twins and



Figure 2. Both twins suckling.

none of the 10 calves survived the birth (EEG 2020). The studbook of Myanmar's timber elephants, reaching back to 1875, lists 3053 births, 17 (0.56%) of which were twins (Mar 2002). The Forest Department of Tamil Nadu (India) recorded 3 twin births in 258 pregnancies (1.16%) in its elephant camps (Sukumar *et al.* 1997).

In 1920 twins were born in an elephant camp in Myanmar (Hundley 1920). The male and female survived and became working elephants (Stockley 1926; Hundley 1927). Yin (1962) reports on a twin birth in Myanmar in 1961. The male and female calves were born 3.5 h apart.

In 1971 male twins were born in an elephant camp in Theppakadu, Tamil Nadu, India. Interestingly the mother first kicked the second calf, born only 15 min after the first. But the caretakers intervened and finally she accepted both calves (Davidar 1971). Female twins were born at an elephant-camp in Orang National Park, Assam in 2010 (Jayawardene 2010). The birth took place in the night when the mother was foraging in the forest.

Nepal recorded its first twin birth in 2008 at the Breeding Center in Chitwan National Park (Thapa 2009). The two males were born 4 h apart during the night. Their father was a wild bull called 'Romeo' who used to visit the camp at night.

In Thailand two sets of same sex twins were born in captivity in 2010 consisting of two females in the Chiang Mai Province and two males in the Surin Province (Jayawardene 2010).

There is also a record of a birth of male triplets in 1913. However, one calf was stillborn and the other two survived less than two weeks, mainly because the mother did not accept them (Macfie 1916).

Elephants have a gestation period of 22 months, the longest of any animal. Therefore carrying two foetuses to full-term is a challenge. Consequently twins are often stillborn or born prematurely. This may be one reason why twin births in

the wild have not been previously reported in Asian elephants. If one or both die at birth due to complications, or the mother rejects one, it is unlikely to be known. Additionally, Asian elephants mostly live in low visibility forests and actively avoid humans and it would be very hard to identify twins in brief encounters of elephant herds. The situation in Minneriya is exceptional as elephants spend long periods of time out in the open grassland and are habituated to tourists, which facilitates their observation.

Outlook

Bernadine has come through the first hurdle of birthing live twins. Feeding two calves is her next challenge, as elephant babies are mostly dependent on the mother's milk for the first two years. Since Bernadine is a young female in good health, and the large protected area system under the Wildlife and Forest Departments provides good fodder year round, there is hope that the twins will survive this critical period and make it to adulthood.

Sri Lanka is arguably the best place in the world to see wild Asian elephants, as it is the country with the highest elephant density (Fernando & Pastorini 2011). With this record of twins in the wild, Sri Lanka chalks up another elephantine first, adding to the only 'dwarf elephant' (Wijesinha *et al.* 2013) and the only known free ranging 'white elephant' in the world, both of whom call Sri Lanka their home.

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